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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,399

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Paolo Bertola

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7590 10/05/2010
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EXAMINER

CHANG, JON CARLTON

ART UNIT	PAPER NUMBER
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2624

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10/05/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,399	Applicant(s) BERTOLA ET AL.	
	Examiner JON CHANG	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 3-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>02/26/08</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claims 3-9 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only, and, cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 3-9 have not been further treated on the merits.

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a

nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1-2 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. In claim 1, the following terms lack antecedent basis: "the CAD 3D systems" in line 20.
5. In claim 2, the following term lacks antecedent basis:
 - a) "the rototranslation equations" in line 9;
 - b) "the plane π " in line 10;
 - c) "the plane $\pi 1$ " in line 11.
6. In claim 2, the term "passages" in line 8, is not understood.
7. Claim 2 ends in a semicolon, rather than a period.
8. Claim 10 is directed to a "system" but fails to provide any structural elements which would be typical of a system. The claim merely recites an intended purpose of the system, without defining what the invention is or what it comprises.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,460,758 to Langer et al. (hereinafter referred to as “Langer”).

11. As to claim 10, Langer discloses an electronic photo-optical system for surveying, digitalizing and reproducing the external surface of a three-dimensional object, either virtually or in plastic, composite or papery material (column 1, lines 14-15, 26-41; column 2, lines 10-63).

12. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,027,281 to Rekow (hereinafter referred to as “Rekow”).

13. As to claim 10, Rekow discloses an electronic photo-optical system for surveying, digitalizing and reproducing the external surface of a three-dimensional object, either virtually or in plastic, composite or papery material (column 2, line 65 to column 3, line 11; column 3, lines 58-60; column 5, line 62 to column 6, line 2).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Langer.

17. As to claim 1, Langer discloses an electronic photo-optical system for surveying, digitalizing and reproducing the external surface of a three-dimensional object, virtually or in plastic, composite or papery material, comprising an integrated module for calculating and managing informatics data (Fig.1, element 13), a scanner module (Fig.1, elements 1-12) and a reproduction module (Fig.1, element 14), characterized in that said integrated calculation module (VT-Data ^{II}) describes the mathematical logic utilized in the hardware in the scanner module (VT-MS ^{II}) (column 2, lines 60-61; column 3, lines 29-31) and the reproduction module (VT-MF ^{II}) and carries out the operations of:

i) surveying, by means of a digital photo camera or a digital image survey and acquisition system, an image sequence of the object to be acquired associated with a

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consecutive and synchronized sequential projection, positioned and moved in predetermined steps (column 2, lines 10-21; column 2, lines 35-40);

ii) processing the information acquired as in i) above and reproducing the mathematics that describe the geometry of the external surface of the acquired object taken as model, generating the space coordinates of said object in accordance with a Cartesian reference system with three axes (x,y,z) as logic of the integrated calculation model (VT-Data ^{II}) (column 2, lines 41-51; Cartesian reference system is inherent);

iii) transferring the mathematical data acquired as in i) and ii) above to a PC for a virtual reproduction of the acquired object; rendering it available by means of specific software to the CAD 3D systems in order to be able to carry out modification interventions (column 2, lines 41-51; column 3, lines 39-48);

iv) transferring to a remote station (i.e., the elements 1-12) the mathematical data acquired as in i), ii) and iii) above in order to reproduce there by means of reproduction module (VT-MF ^{II}) a copy in plastic, composite or papery material (a plastic or polymer resin (column 1, lines 13-15, 51-52) of the external surface of the object acquired by the scanner module (VT-MS ^{II}) or the external surface of a PC-generated virtual object transferred by means of specific software from a CAD 3D file, in accordance with the logic indicated by the integrated calculation module (VT-Data ^{II}) (column 1, lines 32-41; column 3, lines 39-58);

v) colour printing the external surface of the object to be reproduced in plastic,

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composite or papery material, in accordance with the logic indicated by the integrated calculation module (VT-Data ¹¹) (column 3, lines 13-15; painting is considered equivalent to color printing).

18. Langer does not disclose, with regarding to the surveying step, a linear light beam projected parallel to the plane (x,y) on which the object is placed and striking the surface of the object to be surveyed. However, the Examiner takes Official Notice that surveying with a linear light beam projected parallel to the x,y plane is well known in the art. It would have been obvious to one of ordinary skill in the art to utilize this technique because Langer states "any other measuring method allowing the determination of the contour and surface data of the object is suitable for measuring the object".

19. Regarding the transferring step and the color printing step, Langer does not disclose the 3Dr, 3Drtr and 3Dc-type data files. The Examiner takes Official Notice that these types of data files are well known. It would have been obvious to one of ordinary skill in the art to utilize these types of data files in order to conform to conventional practice.

Allowable Subject Matter

20. Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Citation of Relevant Art

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 4,752,964 to Okada et al. discloses a method and apparatus for producing three-dimensional shape. Light irradiates object in optical cutting planes to measure object. The object is rotated on a platform.

U.S. Patent 6,424,877 to Kondo et al. discloses a reproduction apparatus, wherein a three dimensional form of an object is measured, and material is worked to produce a reproduction.

U.S. Patent 4,575,805 to Moermann et al. teaches three dimensional surface characteristics of a tooth are measured, and parameters are computed and used to manufacture an implant.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JON CHANG whose telephone number is (571)272-7417. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Primary Examiner
Art Unit 2624

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